

Guide to Selecting Career Clusters and Career Majors In Kentucky



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Purpose Of This Document

This document is designed to provide information on recognized career clusters and career majors being implemented in Kentucky. It can serve as an educator's guide to assist students in developing an understanding of all career clusters and their relationship to specific careers.

The selection of career clusters and career majors became more important in 1998 with the revision of 704 KAR 3:305 minimum requirements for high school graduation. Section two states "that beginning with the graduating class of 2002 each student in a common school shall complete an Individual Graduation Plan which incorporates emphasis on career development".

The career major is the central focus for developing the Individual Graduation Plan, selecting high level academic and career-related courses, and identifying work-based learning experiences that prepare students for transition to postsecondary education, work, or the military. Additional career majors may be identified by secondary schools or postsecondary institutions other than those listed in this document.

It is recommended that students identify career clusters they would like to explore, beginning at the middle school level. Such exploration should assist students in selecting a career major.

Users of this document include administrators, guidance counselors, teachers, employers, parents, and students. It is recommended that all guidance counselors and teachers be provided copies of this document as a tool in advising students on career planning and course selections. Information may be reprinted for distribution to students and parents to explain the importance of selecting career majors.

This document is also available on the KDE Web page under the Career and Technical Education Section www.kde.state.ky.us/osis/voced/default.asp.

Relationship to Education Reform Initiatives

Career clusters and majors have a direct relationship to education reform initiatives. This relationship is described for some of the major initiatives being implemented in Kentucky.

Kentucky Education Reform Act

The selection of career clusters and majors is important in meeting the goals of the Kentucky Education Reform Act. Specifically, three of the Academic Expectations relate to Career Clusters and Career Majors:

- ❖ Students use strategies for choosing and preparing for a career.
- ❖ Students demonstrate skills and work habits that lead to success in future schooling and work.
- ❖ Students demonstrate skills such as interviewing, writing resumes, and completing applications that are needed to be accepted into college or other postsecondary training or to get a job.

High Schools That Work

The High Schools That Work consortium project with the Southern Regional Education Board includes as two of the key practices the following:

- ❖ Students in general and vocational studies shall complete a challenging and related program of study, including three courses in mathematics and three in science, with at least two credits in each equivalent in content to courses offered in the college preparatory program. Students should also complete at least four courses in a vocational major and two courses in related areas.
- ❖ Career guidance for students and parents.

Tech Prep

The following requirements must be achieved at each Tech Prep site during the first year of implementation.

- ❖ Career exploration, guidance, planning, and assessment process in place beginning no later than the end of the 8th grade.
- ❖ One or more postsecondary program options have been determined with a secondary/postsecondary course sequence for each and articulation agreements with appropriate signature.

School to Careers

The required components of the School to Careers system include the following in relation to career counseling:

- ❖ A comprehensive career awareness and exploration program for all students in Grades K-8 that includes study of Kentucky's fourteen (14) career clusters.
- ❖ A comprehensive career guidance program that provides equal time for all students in developing an Individual Graduation Plan. Students will receive assistance in planning a focused program of study based on Kentucky's fourteen (14) career clusters and the student's career and postsecondary education goals. Parents will be involved in the process of assisting students in selecting courses.

CAREER CLUSTER DESCRIPTIONS

Agriculture	Prepare and support individuals for careers, build awareness, and develop leadership for the food, fiber, and natural resource systems.
Arts & Humanities	Prepare individuals for creating, performing, and conducting literary, artistic, entertaining, and sporting activities, or to explore man and his culture through the study of philosophy, religion, literature, or language.
Business & Marketing	Prepare individuals to perform managerial, research, and technical support functions of business and prepare individuals to plan and execute the buying, selling, promotion, and distribution of ideas, goods, and services.
Communications	Prepare individual to apply technical knowledge and skills to effectively communicate ideas and information.
Construction	Prepare individuals to apply technical knowledge and skills in the constructing, inspecting, and maintaining of structures and related properties.
Education	Prepare individuals for the practice of learning and teaching, and related research, administrative and support services.
Health	Prepare individuals to apply technical knowledge and skills for maintenance of health, prevention of illness, and care of the ill.
Human Services	Prepare individuals for employment in occupations that relate to families and human needs.
Information Technology	Prepare individuals to apply technical knowledge and skills in the rapidly growing occupational fields of computer networking, programming, digital media, support services and e-commerce/web design.
Manufacturing	Prepare individuals to apply technical knowledge and skills in the production, maintenance, assembly, or repair of products.
Public Services	Prepare individuals to analyze, manage, and deliver public service programs including protective services such as police, fire and safety, postal services, and public utilities.

Science & Mathematics	Prepare individuals to apply scientific principles and mathematical knowledge and technical skills to research and development.
Social Sciences	Prepare individuals to study people and the culture in which they live, and to conduct research into human behavior including abnormal behavior politics language, lifestyle, and work.
Transportation	Prepare individuals to apply technical knowledge and skills to maintain and repair aircraft, land vehicles, marine vessels, construction equipment and portable power equipment, and to provide other services for transporting people or materials.

Choosing a Career Cluster or Major

Choosing a career cluster and/or a career major involves several steps: assessing interests and skills, adding transferable skills as one moves through the educational process, and preparing for a specific occupation.

To assist in the selection of a career cluster students should gather and carefully consider information about several topics. Among them are the following:

1. **Self-Assessment** – Students learn about themselves by finding out about interests (recreation, sports, academic, etc.), aptitudes, learning styles, and work and life values. Personal preferences also play an important part in choosing a career cluster or career major.
2. **Characteristics of Career Clusters** – Learning about and comparing the basic features of career clusters will enable students to narrow the choices available. Resources that may be helpful in the process include: printed descriptions, videos, software programs, internet and firsthand experiences (job shadowing, career days/fairs, mentors). Answers to numerous questions such as, “What does it mean to have a job in this career cluster?”, may also be provided.
3. **Trends in the Workforce** – Students should become aware of the nature of the economy (e.g., reductions in industries such as mining and agriculture and increases in service industries) and the changing structures of business and industry (e.g., the shift to part-time workforce, project-oriented groups, just-in-time production). Knowledge about projections of demand for employees in comparison with the number of workers available in occupations should also be part of selection process.
4. **Educational Requirements** – For career majors that require education beyond the secondary level, students should be aware of postsecondary programs (technical and community college, university) providing the education which matches specific occupational requirements. Students also need to know which occupations have state or national licensing requirements.

Students make their first choice of a career cluster or career major by assessing the information gathered from topics 1 through 4. This process can be repeated and revised as students gain more information, experience, and insight in career planning.

Completing a Career Major

Students who complete requirements for a career major in a local school district or a program in the Kentucky Tech System may be awarded career major certificates. In addition, some students will qualify for occupational skill standards certificates endorsed by industry. Certificates may be obtained from the Division of Career and Technical Education, 500 Mero Street, 21st Floor Capital Plaza Tower, Frankfort, KY 40601 and the Department for Technical Education, 20th Floor Capital Plaza Tower, 500 Mero Street, Frankfort, KY 40601. Information about each type of certificate including the name and requirements for attainment is listed.

Career Major Certificate

Requirements shall include:

- ❖ Successful completion of minimum high school graduation requirements to include four career related credits relevant to a career cluster or major.
- ❖ Work-based learning related to the career cluster or major. Some examples of these experiences include job shadowing, internships, and cooperative education.
- ❖ A culminating project related to the career cluster or major. The project must include a writing entry describing the relationship between the project and the student's future educational and career plans. Demonstration of the project is the culminating event.

Career and Technical Certificate of Achievement

The certificate is based on one of the following options:

- ❖ A student who earns four credits within a career major; or
- ❖ A student enrolled in a specific occupational area (in high school programs or vocational or technical schools) and successfully obtains the competencies identified for O* Net Occupations.

Skill Standards Certificate

Requirements shall include:

- ❖ Successful completion of three credits in a major that encompasses the state or national skills standard(s).
- ❖ Attainment of the passing score on the skills standards assessment.

Industry Certificates

Requirements shall include:

- ❖ Successful completion of related course and a passing score on the specific industry exam.

**Aligning Career Clusters and Majors
To
Postsecondary Degrees, Diplomas, Certificates and Related Occupations**

This section indicates how career clusters and majors are aligned to degrees, diplomas, and certificates currently awarded at postsecondary education institutions in Kentucky. Also included is alignment to occupations by educational levels through a listing of sample occupations. The list of Career Majors within each cluster should be the basis for developing a focused program of studies leading to a postsecondary degree, diploma, or certificate.

AGRICULTURE CAREER CLUSTER		
Description: Prepare and support individuals for careers, build awareness, and develop leadership for food, fiber, and natural resource systems.		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
Career Major Agribusiness Agricultural Mechanics Engineering Agricultural Production - Crop - Livestock Forestry/Resource Management Horticulture Skill Standards Horticulture Production Agriculture (Beginning in 2002)	Associate Degrees Agriculture/Agricultural Science, General Agricultural Business and Management, General Agricultural Business Production Agricultural Business/Agribusiness Operations Agricultural Production Workers and Managers, General Environmental Science Technology Equestrian/Equine Studies, Horse Management and Training Forest Harvesting and Production Technology/Technician Veterinarian Assistant/Animal Health Technician Diplomas Agricultural Technology Environmental Technology Horticulture Certificates Agricultural Technology Environmental Science/Studies Environmental Technology Horticulture	Agricultural Biotechnology Agricultural Business/Agribusiness Operations Agricultural Economics Agricultural Engineering Agricultural Production Workers and Managers, General Agriculture/Agricultural Sciences, General Agriculture Education, Communication, and Leadership Agronomy and Crop Science Animal Sciences, General Equestrian/Equine Studies, Horse Management & Training Equine Administration Forestry Science National Resources Conservation

AGRICULTURE CAREER CLUSTER		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
Sample Occupations	Sample Occupations	Sample Occupations
Agriculture Mechanic Helper Animal Caretaker/Groomer Artificial Breeding Technician Cattle Buyer Equipment Operator Farmer Gardener and Groundskeeper General Farm Worker Greenhouse Worker Green Keeper Horse Farm Worker Landscape Lawn Service Worker Logger Nursery Worker Meat Cutter Parts Manager Tree Farmer Veterinarian Aide Welder	Agriculture Chemical Dealer Agriculture Mechanic Agriculturist Cattle Buyer Crop/Food Inspector Diesel Mechanic Farm Equipment Mechanic Farm Manager Farmer Farrier Field Sales Representative for Chemicals, Feed, Fertilizer, and Animal Health Products Florist General Farm Worker Greenhouse Grower Groundskeeper Horse Trainer Horticulture Salesperson Hydroponics Grower Landscape Land Surveyor Logging Supervisor Log/Lumber Grader Nursery Worker Veterinarian Aide Wildlife Manager	Agricultural Communications Director Agriculture Engineer Agriculture Extension Agent Agronomist Bacteriologist Biotechnologist Cattle/Crop Buyer Environmental Conservation Officer Farm Manager Farmer Field Sales Representative for Chemicals, Feed, Fertilizer, and Animal Health Products Finance Officer (Bank, Ag. Credit) Fish and Wildlife Technician Food Processing Supervisor Forester Landscape Architect Meat Grader/Inspector Park/Forest Ranger Real Estate Appraiser/Salesperson Researcher Geneticist (Plant/Animal) Soil Conservationist/Scientist Teacher Veterinarian Wildlife Manager

ARTS AND HUMANITIES CAREER CLUSTER		
Description: Prepare individuals for creating, performing, and conducting literary, artistic, entertaining, and sporting activities, or to explore man and his culture through the study of philosophy, religion, literature, or language.		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
Career Major	Associate Degrees Art History, Criticism and Conservation Bible/Biblical Studies Cartography Economic, General English Language and Literature English Language and Literature, General Drama/Theater Arts, General Fine/Studio Arts French Language and Literature General Studies Graphic Design, Commercial Arts and Illustration Liberal Arts and Sciences/Liberal Studies Music, General Music, General Performance Religious Education Religion/Religious Studies Spanish Language and Literature Sacred Literature Theology/Theological Studies Philosophy Diplomas Bible and Biblical Studies Interior Design Religious Education Religious Sacred Music	Art History, Criticism and Conservation Arts Management Bible/Biblical Studies Biblical and Other Theological Languages and Literature Classic and Classical Languages and Literature Communication Arts Corporate and Organizational Communications Drama/Theater Arts, General English Language and Literature, General Fine/Studio Arts Foreign Language and International Economics Foreign Languages and Literatures, General French Language and Literature German Language and Literature Graphic Design , Commercial Arts and Illustration Greek Language and Literature (Ancient and Medieval) Humanities and Social Sciences Individualized Studies Interior Design Italian Language and Literature Journalism Latin Language and Literature

ARTS AND HUMANITIES CAREER CLUSTER		
Description: Prepare individuals for creating, performing, and conducting literary, artistic, entertaining, and sporting activities, or to explore man and his culture through the study of philosophy, religion, literature, or language.		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
	Diplomas Cont'd Theology/Theological Studies Visual Communication Arts Technology Certificates Bible/Biblical Studies Music, General Religion/Religious Studies Theology/Theological Studies Visual Communication Arts Technology	Liberal Arts and Science/Liberal Studies Library Science/Librarianship Linguistics Music Business Management and Merchandising Music (Liberal Arts) Music, General Music, General Performance Music History and Literature Music Theory and Composition Music Therapy Philosophy Philosophy and Religion Public Relations and Organizational Communications Religion/Religious Studies Religious Education Religious/Sacred Music Russian Language and Literature Sacred Literature Spanish Language and Literature Speech Communication and Human Relations Speech and Rhetorical Studies Speech and Theater Theology/Theological Studies Visual and Performing Arts

ARTS AND HUMANITIES CAREER CLUSTER		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
Sample Occupations	Sample Occupations	Sample Occupations
Graphic Arts Technician Photographer Helper Pop Musician or Singer Sign Painter Stagehand	Graphic Artist Layout Artist Model Museum Technician Musician Photographer Retoucher Photographer, Commercial Photographer, Portrait Sound or Lighting Operator State Electrician Stage Manager	Actor/Actress Advertising Art Director Art Teacher Audiovisual Production Specialist Band/Orchestra Director Choreographer Composer/Conductor Copywriter Dancer Editor Foreign Language Teacher Interior Designer Librarian Museum Guide Music/choral Director Music Teacher Narrator/Announcer Technical Writer Translator/Interpreter

BUSINESS AND MARKETING CAREER CLUSTER		
Description: Prepare individuals to perform managerial, research, and technical support functions of business and prepare individuals to plan and execute the buying, selling, promotion, and distribution of ideas, goods, and services.		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
Career Major Accounting Services Administrative Support Services Advertising Services Apparel and Accessories/Fashion Merchandising Business Management E-Commerce Financial Services Hospitality, Travel, Tourism, and Recreation Information Processing Services Legal Office Services Management Entrepreneurship Marketing Medical Office Services Office/Clerical Services Retailing/Wholesaling Sports Marketing Kentucky Tech Kentucky Tech schools offer certificates within the career cluster. Contact Kentucky Tech in your area for a listing of certificates. Skill Standards Administrative Support Services Financial Services (Beginning in 2002) Marketing (Beginning in 2002)	Associate Degrees Accounting Accounting Technician Administrative Asst./Secretarial Science Business Business Administration and Management Economics, General Business and Office Technology-Accounting Business and Office Technology-Computer Systems Operator Enterprise Management and Operation Executive Assistant/Secretary Hotel/Motel and Restaurant Management Management Information Systems and Business Data Processing, General Medical Administrative Asst./Secretary Medical Office Technology-Administrative Medical Office Technology-Insurance Coding Medical Office Technology-Medical Records Medical Office Technology-Transcription Office Supervision and Management Operations Management and Supervision Quality Technology Real Estate Travel Services Marketing Operations	Accounting Actuarial Science Administrative Asst./Secretarial Science Advertising Business Business Administration and Management Business Data Processing Business/Managerial Economics Business Marketing and Marketing Mgt. Business Teacher Education (Vocational) Economics Equine Administration Executive Assistant/Secretary Fashion Merchandising Finance Hospitality Administration/Management Hotel/Motel and Restaurant Management Insurance & Risk Management International Business Labor/Personnel Relations and Studies Management Information Systems & Management Science Office Supervision & Management Organizational Administration Organizational Behavior Studies Real Estate

BUSINESS AND MARKETING CAREER CLUSTER		
Description: Prepare individuals to perform managerial, research, and technical support functions of business and prepare individuals to plan and execute the buying, selling, promotion, and distribution of ideas, goods, and services.		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
Retail Services	Diplomas Accounting and Finance Technology Business Administration and Management Computer Applications Technology Executive Assistant/Secretary Information Technology Legal Office Technology Medical Office Technology Multimedia Technology Office Technology Software Technology Travel Services Marketing Operations Certificates Accounting Accounting and Finance Technology Administrative Assistant/Secretarial Science, General Assistant/Secretary Business Computer and Information Science Executive Assistant/Secretary Information Technology Legal Office Technology Logistics and Material Management Medical Administrative Medical Office Technology Multimedia Technology	

BUSINESS AND MARKETING CAREER CLUSTER		
Description: Prepare individuals to perform managerial, research, and technical support functions of business and prepare individuals to plan and execute the buying, selling, promotion, and distribution of ideas, goods, and services.		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
	Certificates Cont'd Office Supervision and Management Office System Administration Office Technology Operations Management and Supervision Quality Technology Real Estate Software Technology Travel Services Marketing Operations Travel Tourism Management	

BUSINESS AND MARKETING CAREER CLUSTER		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
Sample Occupations	Sample Occupations	Sample Occupations
Bookkeeping and Accounting Clerk Cashier Clerk Stock: Stockroom and Warehouse Data Entry Keyer Front Desk Clerk General Office Clerk Legal Clerk Medical Clerk Receptionist Sales Associate Salesperson, Retail Secretary Typist and Word Processing Equipment	Accounting Assistant Accounting Clerk Administrative Health Coordinator Administrative Assistant Advertising Clerk Bank Teller Bookkeeping and Accounting Clerk Computer Programmer Computer Systems Operator Court Reporter Data Entry Technician Desktop Operator Desktop Publishing Specialist Fashion/Retail Manager Trainee Food/Restaurant Manager Trainee Insurance Sales Worker Legal Administrative Assistant Legal Office Assistant Medical Administrative Assistant Medical Insurance Tech Medical Office Assistant Real Estate Broker and Agents Small Business Owner Software Applications Operator	Account and Auditor Advertising Specialist Business/Marketing Teacher Business Manager and Administrator Buyer Desktop Graphic Designer Fashion/Retail Manager Financial Specialist Food/Restaurant Manager Insurance Agent Lodging Manager Office Manager Purchasing Agent Sales Agent Sales Representative Sales Supervisor Small Business Owner

COMMUNICATIONS CAREER CLUSTER		
Description: Prepare individuals to apply technical knowledge and skills to effectively communicate ideas and information.		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
Career Major Communications Electronics Computer Aided Drafting Desktop Publishing Technology Multimedia Technology Printing Technology Telemedia Technology Visual Communication Art Industry and Skill Standards Communications (Beginning in 2002) International Graphic Arts Association Printing Industry of America (FIA) Kentucky Tech Kentucky Tech schools offer certificates within the career cluster. Contact Kentucky Tech in your area for a listing of certificates.	Associate Degrees Architectural Drafting Communications, General Computer and Information Sciences, General Data Processing Technology/Technician Drafting, General Graphic Design, Commercial Art and Illustration Graphic Production Network and Information System Technology Technical Illustration Technical Teacher Education Trade and Industrial Teacher Education (Vocational) Vocational Degree Diplomas Computer Aided Drafting Computer Applications Technology Electronics Computer Technology Electronics Technology Graphic Technology Multimedia Technology Visual Communication Arts Technology	Communications, General Photojournalism Radio and Television Broadcasting Technology/Technician Computer and Information Sciences, General Information Sciences and Systems Computer Electronic Networking Electrical, Electronic & Communications Engineering Technology Electromechanical Technology/Technician Electronic Engineering Technology Communications Arts Graphic Design, Commercial Art and Illustration Graphic Production

COMMUNICATIONS CAREER CLUSTER		
Description: Prepare individuals to apply technical knowledge and skills to effectively communicate ideas and information.		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
	Certificates Computer Aided Drafting Computer and Information Sciences, General Computer Applications Electronics Technology Graphic Technology Multimedia Technology Software Technology Network and Information Systems Technology Visual Communications Art Technology	

COMMUNICATIONS CAREER CLUSTER		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
Sample Occupations	Sample Occupations	Sample Occupations
Drafter/CAD Radio and Television Broadcaster Photographer Computer Repair (A+) Computer Network Technician	Commercial Photographer Computer Network Specialist (CISCO) Drafter/CAD Computer Technician Digital Output Specialist Electronic Prepress Specialist Flexography Specialist Graphic Artist Graphic Designer Layout Artist Multimedia Animation Assistant Multimedia Specialist Production Artist Printer Telecommunications Assistant Webpage Design	Writer and Editor Reporter Telecommunications Director Film Producer Computer Engineer Public Relations Consultant

CONSTRUCTION CAREER CLUSTER		
Description: Prepare individuals to apply technical knowledge and skills in the constructing, inspecting, and maintaining of structures.		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
Career Major Residential Commercial Carpentry Residential Commercial Electricity Masonry Metal Fabrication Plumbing Technology Welding Wood Products Manufacturing Kentucky Tech Kentucky Tech schools offer certificates within the career cluster. Contact Kentucky Tech in your area for a listing of certificates. Industry and Skill Standards Association of Building Contractors (ABC) Associated General Contractors (AGC) Construction Communications (Beginning in 2002)	Associate Degrees Electrician Electrical Technology Plumbing Technology Surveying Technical Teacher Education (Vocational) Trade and Industrial Teacher Education (Vocational) Welder/Welding Technologist Vocational Degree Diplomas Building and Apartment Maintenance Carpentry General Construction Technology Electrical Technology Masonry Plumbing Technology Metal Fabrication Surveying and Mapping Technology Welding Certificates Air Conditioning Technology Building/Property Maintenance & Manager Carpentry Electrical Technology General Construction Technology Heavy Equipment Operator Masonry Metal Fabrication Plumbing Technology Survey and Mapping Technology	Architecture

CONSTRUCTION CAREER CLUSTER		
Description: Prepare individuals to apply technical knowledge and skills in the constructing, inspecting, and maintaining of structures.		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
Apprentice Bricklayer Brick Mason Bricklayer Helper Carpenter Helper Electrician Helper Excavating Loading Machine Operator Grader, Dozer, Scraper Operator Painter and Paperhanger Plumber Apprentice First Year Plumber Helper Residential Carpenter Residential Electrician Roofer Rough Carpenter Sheet Metal Worker Stone Mason	Apprentice Electrician Cabinetmaker and Bench Carpenter Construction Bricklayer Construction Carpenter Construction Electrician Construction Mason Construction Worker I Excavating Loading Machine Operator General Contractor Grader, Dozer, Scraper Operator Heating, Air Conditioning, Refrigerator Mechanic Industrial Electrician Industrial Electrician Controls Technician Plumber Apprentice Plumber and Pipefitter Refrigeration Mechanic Surveying Technology	Architect Architectural Engineer Civil Engineer Civil Engineering Technician Construction Project Manager Construction Project Superintendent

EDUCATION CAREER CLUSTER		
Description: Prepare individuals for the practice of learning and teaching and related research, administrative and support services.		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
	Associate Degrees Pre-Elementary/Early Childhood/Kindergarten Teacher Education General Occupational/Technical Studies Religious Education Sign Language Interpreter Technical Teacher Education (Vocational) Trade and Industrial Teacher Education (Vocational) Vocational Degree Diplomas None Certificates Canadian Studies French Language and Literature German Language and Literature Japanese Language and Literature Middle Eastern Studies Music, General Performance Spanish Language and Literature Leadership Studies Women's Studies	Agricultural Teacher Education (Vocational) Art Teacher Education Business Teacher Education (Vocational) Computer Science and Math Teacher Education Education of the Deaf and Hearing Impaired Education, General Education of the Speech Impaired Elementary Teacher Education Family and Consumer Sciences Teacher Education (Vocational) Health Occupations Teacher Education Health Teacher Education Internship Studies Junior High Intermediate/Middle School Teacher Education Liberal Arts and Sciences/Liberal Studies Math and Physical Sciences Teacher Education Music Teacher Education Physical Education Teaching and Coaching Pre Elementary/Early Childhood/Kindergarten Teacher Education Religious Education Science Teacher Education, General Sign Language Interpreter Social Studies Teacher Education Special Education, General

EDUCATION CAREER CLUSTER		
Description: Prepare individuals for the practice of learning and teaching and related research, administrative and support services.		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
		Speech Pathology and Audiology Technology Teacher Education/Industrial Arts Teacher Education Trade and Industrial Teacher Education (Vocational)

EDUCATION CAREER CLUSTER		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
Sample Occupation	Sample Occupation	Sample Occupation
Teacher Aide	Interpreter Kindergarten Aide Religious Education Director	College Lecturer/Teacher Education Administrator Elementary School Teacher High School Teacher (All Subjects) Junior High School or Middle School Teacher Preschool/Kindergarten Teacher Religious Education Director School Librarian Special Education Teacher Vocational Education Counselor Vocational Education Teacher

HEALTH SCIENCES CAREER CLUSTER

Description: Prepare individuals to apply technical knowledge and skills for maintenance of health, prevention of illness and care of the ill.

Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
<p>Career Major Allied Health Pre-Nursing</p> <p>Kentucky Tech Kentucky Tech schools offer certificates within the career cluster. Contact Kentucky Tech in your area for a listing of certificates.</p> <p>Skill Standards (Beginning in 2002) Health-Care Core</p>	<p>Associate Degrees Ceramic Arts and Ceramics Dental Hygienist Dental Laboratory Technician Dietician Assistant Emergency Medical Technology Exercise Sciences/Physiology and Movement Studies Gerontology Medical Administrative Assistant/Secretary Medical Laboratory Technician Medical Radiologic Technology/Technician Nuclear Medical Technology/Technician Nursing (R.N. Training) Occupational Therapy Assistant Physical Therapy Assistant Psychiatric/Mental Health Services Technician Respiratory Therapy Technician Radiography Social Work Vocational Degree</p> <p>Diplomas Biomedical Equipment Technology Cosmetology Dental Technology Diagnostic Medical Sonography</p>	<p>Athletic Training and Sports Medicine Community Health Liaison Community Psychology Counseling Psychology Cytotechnologist Dental Hygienist Environmental Science/Studies Exercise Sciences/Physiology and Movement Studies Fire Protection and Safety Technology/Technician Food Sciences and Technology Foods and Nutrition Science Foods and Nutrition Studies, General Forensic Technology/Technician Health and Medical Preparatory Programs, Other Health and Physical Education, General Health Occupations Teacher Education (Vocational) Health Systems/Health Services Administration Health Teacher Education Medical Office Management Medical Radiologic Technology/Technician Medical Records Administration Medical Technology Microbiology/Bacteriology Nuclear Medical Technology/Technician</p>

HEALTH SCIENCES CAREER CLUSTER

Description: Prepare individuals to apply technical knowledge and skills for maintenance of health, prevention of illness and care of the ill.

Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
	<p>Emergency Medical Technology Environmental Technology/Technician Fire and Rescue Training Medical Assisting Medical Laboratory Technology Medical Office Management Medical Office Technology Nursing Midwifery (Post R.N.) Occupational Therapy Assisting Ophthalmic Assisting Paradmedical Technology Pharmacy Technology Practical Nursing Radiography Respiratory Care Technology Surgical Technology</p> <p>Certificates Child Care Provider/Assistant Cosmetology Dental Technology Dietetics/Human Nutritional Services Emergency Medical Technology/Technician Environmental Technology Fire and Rescue Training Fire Protection and Safety Technology/Technician Gerontology Health Systems, Health Services Admin.</p>	<p>Nursing (General-post R.N.) Nursing (R.N. Training B.S.N.) Occupational Safety and Health Technology/Technician Occupational Therapy Physician's Assistant Physiological Psychology/Psycho-biology Pre-Physical Therapy Psychiatric/Mental Health Services Technician Psychology, General Respiratory Therapy Technician Social Work Speech Communications and Human Relations Sport and Fitness Administration Mgt. Speech Pathology and Audiology Veterinarian Assistant/Animal Health Technician</p> <p>Professional Programs Dentistry (C.C.S, D.M.D) Medicine (M.D.) Pharmacy (B. Pharm., Pharm. D.) Nursing</p>

HEALTH SCIENCES CAREER CLUSTER		
Description: Prepare individuals to apply technical knowledge and skills for maintenance of health, prevention of illness and care of the ill.		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
	Certificates Cont'd Medical Administrative Assistant/Secretary Medical Administrative Services Medical Assisting Medical Laboratory Technology Medical Office Technology Medical Physiology Medical Records Technology/Technician Medical Transcription Nursing, Family Practice (Post R.N.) Nursing, General (Post R.N.) Practical Nursing Radiography Respiratory Care Technology Social Work	

HEALTH SCIENCES CAREER CLUSTER		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
Sample Occupations	Sample Occupations	Sample Occupations
Dental Office Clerk Dental Office Receptionist Home Health Aide Medicaid Nurse Aide Medical Office Clerk Medical Office Receptionist Nursing Aide Orderly Psychiatric Aide	Administrator Biomedical Equipment Technician Diagnostic Medical Sonographor Dental Assistant Dental Hygienist (AD) Dental Lab Technician Dietician Assistant Emergency Medical Technician Interpreter Lab Assistant Lab Technician Licensed Practical Nurse (LPN) Medical Assistant Medical Billings Assistant Medical Laboratory Technician Medical Records Secretary/Technician Medical Records Technician Mental Health Technician MRI/CAT Scan Technician Nurse Anesthetist Occupational Therapy Assistant Operating Room Technician Ophthalmic Assistant Paramedic Pharmacy Technician Phlebotomist Physical Therapy Assistant	Administrator Athletic Trainer Audiologist Biomedical Photographer Community Liaison Dental Hygienist (BS) Dentist Dietician Doctor of Osteopathy Health Sciences Librarian Lab Technologist Medical and Health Services Manager Medical Illustrator Medical Librarian Medical Records Administrator Medical Statistics Medical Writer Mental Health Technician Nurse Specialties: 1. Obstetrics/Gynecology 2. Medical 3. Psychiatric 4. Pediatrics 5. Critical Care/Trauma 6. Cardiac Care 7. Home Health Nurse Educator

HEALTH SCIENCES CAREER CLUSTER		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
Sample Occupations	Sample Occupations	Sample Occupations
	Radiology Technologist Respiratory Care Technician Respiratory Therapy Technician Surgical Technologist	Nurse Midwife Nurse Practitioner Occupational Therapist Optometrist Oral Surgeon Orthodontist Periodontist Pharmacist Physical Therapist Physician (may specialize) Physician Assistant Public Relations Recreational Therapist Registered Nurse (MSN) Registered Nurse (BSN) Researcher-Medical Respiratory Therapist School Health Nurse Social Worker (BS) Speech Pathologist Surgeon (may specialize) Teacher Veterinary Asst./Technician X-Ray Technician

HUMAN SERVICES CAREER CLUSTER		
Description: Prepare future employees for occupations which assist individuals and families to meet human needs.		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
Career Major Child Development Cosmetology Consumer Services Culinary Arts Family and Consumer Sciences Education Family Services Hospitality Services Housing and Interiors Textiles and Apparel Kentucky Tech Kentucky Tech schools offer certificates within the career cluster. Contact Kentucky Tech in your area for a listing of certificates. Skill Standards Certificates Child Care Consumer Services Culinary Arts Family Services Hospitality Services Housing and Interiors	Associate Degrees Baker/Pastry Chef Child Care Provider/Assistant Culinary Arts/Chef Training Culinary Arts/Related Training Dietician Assistant Home Furnishings and Equipment Installers and Consultants Hotel/Motel Restaurant Management Institutional Food Workers and Administrators Pastoral Counseling and Specialized Ministries Paralegal/Legal Assistant Pre-Law Studies Social Work Diplomas Baker/Pastry Chef Barbering Child Care & Guidance Worker & Managers Child Care Provider/Assistance Child Care Services Manager Child Development Services Culinary Arts Culinary Arts/Chef Training Cosmetology Food & Beverage/Restaurant Operations Manager Gerontology Interior Design	Church Ministry Clothing/Apparel and Textiles Consumer Economics and Science Early Childhood/Kindergarten Teacher Fashion Merchandising Food and Nutrition Science Food and Nutrition Studies, General Health and Physical Education, General Family and Consumer Sciences, General Family and Consumer Sciences Teacher Education Hospitality Administrative Management Hotel/Motel Restaurant Management Housing Studies, General Human Relations Services Human Resources/Social Administration Human Sciences Individual and Family Development Studies Interior Design Missions/Missionary Studies and Missiology Parks Recreation and Leisure Facilities Management Paralegal/Legal Assistant Pastoral Counseling Pastoral Ministry Recreation Social Work Professional Programs

HUMAN SERVICES CAREER CLUSTER		
Description: Prepare future employees for occupations which assist individuals and families to meet human needs.		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
	Diplomas Cont'd Missions/Missionary Studies and Missiology Pastoral Ministry Travel Services Marketing Operations Upholsterer Certificates Cosmetology Culinary Arts Dietetics/Human Services Child Care Provider/Assistant Child Development Services Social Work Tailoring	Law (LL.B, JD.)

HUMAN SERVICES CAREER CLUSTER		
Description: Prepare future employees for occupations which assist individuals and families to meet human needs.		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
Alterationist Assistant Cook Barber Caterer Assistant Child Care Aide Cook Day Care Worker Decorator Aide Dressmaker Elder Care Aide Hairdresser and Cosmetologist Homemaker Homemaker Aide Paper Hanger Personal Shopper Social Welfare Service Aide Waiter and Waitress	Apprentice Cosmetology Instructor Baker Barber/Stylist Cafeteria Manager Caterer Child Care Supervisor Cosmetologist Decorating Consultant Dietary Aide Elder Care Aide Family Support Worker Food Service Health Care Worker Food Service Supervisor Hair Stylist Legal Assistant Lighting Specialist Manicurist Restaurant Manager Tailor Upholsterer	Case Worker Supervisor Children's Clothing Designer Consumer Affairs Director Costume Designer Day Care Supervisor Dietitian Extension Family and Consumer Scientist Family and Consumer Sciences Teacher Fashion Editor Financial Adviser Food Editor/Journalist Homemaker Interior Designer Judge Kindergarten Teacher Kitchen Planner Lawyer Minister Nursing Home Assistant Parks and Recreation Pastoral Counselor Referee in Bankruptcy Restaurant Manager Senior Citizen Director Social Worker

INFORMATION TECHNOLOGY CAREER CLUSTER		
Description: Prepare individuals to apply technical knowledge and skills in the rapidly growing occupational fields of computer networking, programming, digital media, support services, and e-commerce/web design.		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
Career Major Computer Maintenance and Support Services Networking Programming Web Design Industry and Skill Standards Comp TIA: A+ Network+ I-Net+ Server+ CISCO (CCNA) MICROSOFT (MCP, MCSE) NOVELL (CNE) NORTEL APPLE (ACTC, ACSA) Help Desk (HDA) Certified Internet Webmaster (CIW)	Associate Degrees Computer Information Sciences, General Computer Programming Database Administration Electronic Commerce Information System Support Network Administration Certificates Comp TIA: A+ Network+ i-Net+ Server+ Cisco Information Technology NORTEL NOVELL	

INFORMATION TECHNOLOGY CAREER CLUSTER		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
Sample Occupations	Sample Occupations	Sample Occupations
Cable Installer Call Center Support Representative Computer Operations Technician Computer Operator Customer Service Representative Help Desk Technician LAN Support Analyst Page Developer Software/Application Support Technical Support Representative Technician Web Designer	Computer Programmer Help Desk Specialist LAN Support Analyst LAN Technician Network Administrator Network Analyst Network Specialist Quality Assurance Technician Site Developer Software Designer Systems Analyst Technical Support Representative Web Designer	Computer Engineer Computer Programmer Computer Scientist Network Administrator Software Designer Software Engineer Systems Administrator Systems Analyst Web Architect Web Designer

MANUFACTURING CAREER CLUSTER		
Description: Prepare individuals to apply technical knowledge and skills in the production, maintenance, or repair of products.		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
Career Major Air Conditioning Technology Industrial Automation Technology Industrial Chemical Technology Industrial Electronics Technology Industrial Maintenance Technology Machine Tool Technology Major Appliance Technology Plastics Technology Welding Wood Products Manufacturing Industry and Skill Standards American Welding Society CIM-Certified Integrated Manufacturing Manufacturing NIMS-National Institute of Metalworking Society SME-Society of Manufacturing Kentucky Tech Kentucky Tech schools offer certificates within the career cluster. Contact Kentucky Tech in your area for a listing of certificates.	Associate Degrees Applied Process Technology Applied Science Applied Science-Engineering Transfer Apprenticeship Studies Apprenticeship Technology Enterprise Management and Operation, General Electronics Technology Electromechanical Technology/Technician Heating, Air Conditioning, and Refrigeration Mechanic and Repairer Industrial Electronics Installer and Repairer Industrial Machinery Maintenance and Repairer Industrial Maintenance Technology Machine Shop Assistant Manufacturing Technology Mechanical Engineering/Mechanical Technology/Technician Plastics Technology/Technician Quality Control Technology/Technician Quality Technology Technical Teacher Education (Vocational) Trade and Industrial Teacher Education (Vocational) Vocational Degree Welder/Welding Technologist	Industrial Technology Industrial/Manufacturing Technology/Technician Manufacturing Engineering Technology Occupational Safety and Health Technology/Technician

MANUFACTURING CAREER CLUSTER		
Description: Prepare individuals to apply technical knowledge and skills in the production, maintenance, or repair of products.		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
	<p>Diplomas</p> <ul style="list-style-type: none"> Air conditioning Technology Applied Process Technology Automated Systems Technology Computer Aided Drafting Computer Applications Technology Electronics Technology Industrial Automation Technology Industrial Maintenance Technology Machine Tool Technology Major Appliance Technology Manufacturing Systems Technology Metal Fabrication Plastics Technology Software Technology Tailoring: Quality Assurance Technology Upholstery Welding Wood Manufacturing Technology <p>Certificates</p> <ul style="list-style-type: none"> Automated Systems Technology Computer Aided Drafting Computer Applications Electronics Technology Industrial Automation Technology Industrial Maintenance Tech Machine Tool Technology 	

MANUFACTURING CAREER CLUSTER		
Description: Prepare individuals to apply technical knowledge and skills in the production, maintenance, or repair of products.		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
	Manufacturing Systems Technology Certificates Cont'd Metal Fabrication Plastics Technology Software Technology Tailoring Upholstery Quality Assurance Technology Welding Technology Wood Manufacturing Tech	

MANUFACTURING CAREER CLUSTER		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
Sample Occupations	Sample Occupations	Sample Occupations
Air Conditioner Installer/Service Air Conditioning/Refrigeration Mechanic Helper Arc Cutter Arc Welder Electronics Tester Fluid Power Technician Gas Appliance Services Gas Welder Grinder Operator Tool Surfer Machine Operator II Refrigeration Unit Repairer Tack Welder Tool Maker Apprentice	Air Conditioning/Refrigeration Mechanic Architectural Drafter Cabinet Maker Chemical Operator CNC Machinist Apprentice Combination Welder Computer Electronics Mechanic Consumer Electronics Technician Customer Tailor Domestic Air Conditioning/Furnace Installer Electronic Computer Networker Electronic Computer Technician Furniture Maker Furniture Upholster Industrial Automation Technician Industrial Maintenance Technician Mechanic Machine Shop Apprentice Major Appliance Technician Manufacturing Systems Helper Manufacturing Systems Technician Mechanical Drafter Millworker	Electrical Engineer Industrial Electrical Engineer Industrial Electronic Engineer Plant Manager Plant Superintendent Scientist Pipeline Welder Plastics Process Technician Quality Assurance Technician Refinery Operator Refrigeration Mechanic Robotics Technician Sheet Metal Worker Tool and Die Maker Apprentice Welding Technologist Wood Technologist

MANUFACTURING CAREER CLUSTER		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
Sample Occupations	Sample Occupations	Sample Occupations
	Pipeline Welder Plastics Process Technician Quality Assurance Technician Refinery Operator Refrigeration Mechanic Robotics Technician Sheet Metal Worker Tool and Die Maker Apprentice Welding Technologist Wood Technologist	

PUBLIC SERVICES CAREER CLUSTER		
Description: Prepare individuals to analyze, manage, and deliver public service programs including protective services such as police, fire and safety; postal services and public utilities.		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
Career Major Criminal Justice and Corrections Fire Services Postal Services Public Utilities	Associate Degrees Corrections/Correctional Administration Criminal Justice/Law Enforcement Administration Criminal Justice Studies Emergency Medical Technology/Technician Law Enforcement/Police Science Fire Protection and Safety Fire Science/Fire Fighting Technology/Technician Diplomas Environmental Technology Fire and Rescue Training Certificates Corrections/Correctional Administration Environmental Technology Fire and Rescue Training Fire Protection and Safety Technology/Technician Paralegal/Legal Assistant	Bachelors Degree: Postsecondary Level Civil Engineering, General Corrections/Correctional Administration Criminal Justice Studies Criminal Justice/Law Enforcement Administration Fire Protection and Safety Technology/Technician Forensic Technology/Technician Law Enforcement/Police Science Public Administration Security and Loss Prevention Science Professional Programs Law (LL.B., J.D.)

PUBLIC SERVICES CAREER CLUSTER		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
Sample Occupations	Sample Occupations	Sample Occupations
<p>Corrections Officer Craft positions (i.e. clerk, city/rural mail carrier) All employees must take a postal service exam.</p> <p>Data Entry Keyers Deputy Jailers Eligible for Certification as a Volunteer Fire Fighter Equipment Operator (Auger Truck) General Manager – Water Plant Lineman Mechanical/Electrical Drafter Motor Installer and Remover Meter Reader Private Protective Services Radio Dispatcher Security Guard Stationary Engineer Telecommunications Officer Truck Driver Utility Worker Wastewater Treatment Plant Operator Water Treatment Plant Operator</p>	<p>Certified Medical Technician (EMT) Corrections Officer Craft positions (i.e. clerk, city/rural mail carrier, mail handler). All employees must take a postal service exam. Criminal Justice Investigator Eligible for Certification as a Paid Fire Fighter Equipment Operator (Auger Truck) Fish and Game Warden Lineman Maintenance Repairs Mechanical/Electrical Drafter Meter Installer and Remover Meter Reader Police Officer Private Protective Services Radio Dispatcher Security Guard Stationary Engineer Telecommunications Officer</p>	<p>Arson Investigator Chemist – Sewer Plant Classification and Treatment Craft positions (i.e. clerk, city rural mail carrier, mail handler). All employees must take a postal service exam. Eligible for Certification as a Paid Fire Fighter Engineer with State Registration Fire Safety Engineer Fire Specialist (hazardous materials, etc.) Forensic Technician Law Enforcement Instructor Manager – Sewer Plant Officer of Adult Corrections Police Officer Probation Officer Safety Consultant (OSHA) Security Guard</p>

SCIENCE AND MATHEMATICS CAREER CLUSTER		
Description: Prepare individuals to apply scientific principles, mathematical knowledge, and technical skills to research and development.		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
Career Major Pre-Engineering Technology Education	Associate Degrees Applied Science Biology, General Biological and Physical Sciences Civil Engineering/Civil Technology/Technician Chemistry, General Chemical Technology Technician Computer Maintenance Technology/Technician Electromechanical Technology/Technician Electrical, Electronic, and Communications Engineering Technology Engineering Technology/Technician Instrumentation Technology/Technician Meteorological Technology Mathematics Physics, General Water Quality and Wastewater Treatment Technology/Technician Diplomas Applied Process Technology General Construction Technology Software Technology Quality Assurance Technology Certificates Applied Process Technology	Actuarial Science Architecture Applied Mathematics, General Applied Science Applied Science-Engineering Transfer Architectural Engineering Technology/Technician Biochemistry Biochemistry and Molecular Biology Biological and Physical Science Biology, General Chemical and Atomic/Molecular Physics Chemical Engineering Chemistry, General Civil Engineering/Civil Technology Technician Computer Engineering Computer Information Science, General Computer Science Data Processing Technology/Technician Earth and Planetary Sciences Ecology Electrical, Electronic and Communications Engineering Technology Engineering, General Engineering Physics Environmental and Pollution Control Tech Manufacturing Engineering Technology Information Sciences and Systems

SCIENCE AND MATHEMATICS CAREER CLUSTER		
Description: Prepare individuals to apply scientific principles, mathematical knowledge, and technical skills to research and development.		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
	Certificates Cont'd Mathematics Mathematics and Computer Science	Geology Mathematical Statistics Mathematics Mathematics and Computer Science Materials Engineering Mechanical Engineering Mechanical Engineering/Mechanical Technology/Technician Microbiology/Bacteriology Mining and Mineral Engineering Physics, General Physical Science, General Recombinant Genetics Water Quality and Wastewater Treatment Technology

SCIENCE AND MATHEMATICS CAREER CLUSTER		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
Sample Occupations	Sample Occupations	Sample Occupations
Automated Equipment Engineer Technician Biological Aide Computer Operator Computer Programmer Aide Conservation Technician Conservations Technician (Museum) Electrician Helper Electronics Inspector/Hydrographer Laboratory Tester Marine Services Technician Museum Technician Statistical Clerk Tax Preparer	Biological Technology Technician Chemical Supplier Computer Engineering Technology Technician Electric, Electronic, and Communications Engineering Technology/Technician Engineering Technology Technician, General Food and Drug Inspector Industrial/Manufacturing Technology/Technician Laser Technician Meteorologist Radiation protection Specialist Robotics Technology/Technician Science Technologies Technician Teller, Collection and Exchange	Accountant Aeronautical Design Engineer Agronomist Astronomer Architect Banker Biomedical Engineer Botanist Chemical Engineer Chemist Computer Programmer Computer Scientist Environmental Analyst Fishery Biologist Forest Ecologist Geologist Geophysicist Genetic Counselor Hydrologist Meteorologist Microbiologist

SOCIAL SCIENCES CAREER CLUSTER		
Description: Prepare individuals to study people and the culture in which they live, and to conduct research into human behavior including abnormal behavior, politics, language lifestyle, and work.		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
	Associate Degrees Cartography Economics, General History International Relations and Affairs Political Science and Government, General Psychology, General Social Sciences, General Social Work Sociology Diplomas None Certificates School Psychology Social Work Sociology	Afro-American (Black) Studies American Studies Anthropology Applied Sociology and Anthropology Community Psychology Counseling Psychology Economics, General European Studies Geography History History and Government Human Resources/Social Administration International Relations and Affairs Latin American Studies Physiological Psychology/Psychobiology Political Science and Government, General Psychology, General Russian and Slavic Area Studies Social Sciences, General Social Studies, Teacher Education Social Work Sociology Sociology and Anthropology Women's Studies

SOCIAL SCIENCES CAREER CLUSTER		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
Sample Occupation	Sample Occupation	Sample Occupation
Legislative Aide Property Manager Social and Human Services Asst. Teachers Aid	Legislator Mapmaker Prison Guard Social Worker Travel Agent	Anthropologist Archeologist Archivist Consumer Advocate Economist Employment Interviewer Historian Historical Research Assistant Job Analyst Legislator Occupational Analyst Personnel Recruiter Political Scientist Psychologist: Educational Industrial-organizational Social Sociologist Social Worker Urban Planner

TRANSPORTATION CAREER CLUSTER		
Description: Prepare individuals to apply technical knowledge and skills to maintain and repair transportation equipment.		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
Career Major Aviation Technology Automotive Technology Collision Repair and Refinish Technology Commercial/Recreational/ Small Engine Technology Diesel Technology Industry and Skill Standards Automotive Service Excellence Transportation (Beginning in 2002) Kentucky Tech Kentucky Tech schools offer certificates within the career cluster. Contact Kentucky Tech in your area for a listing of certificates.	Associate Degree Aircraft Mechanic/Technician Powerplant Automotive Technology Auto/Automotive Mechanic/Technician Aviation Management Diesel Engine Mechanic and Repairman Diesel Technology Technical Teacher Education (Vocational) Trade and Industrial Teacher Education (Vocational) Vocational Degree Diplomas Air Conditioning Technology Auto Body Repair Automotive Technology Automotive Technician Aviation Maintenance Technology Diesel Technology Heavy Equipment Operation Small Equipment Repair Certificate Auto Body Repair Automotive Technology Diesel Technology Truck Driver Training Heavy Equipment Operation Small Engine Repair Truck Driving Water Transportation Worker	Bachelors Degree: Postsecondary Level Aircraft Pilot and Navigator (Professional)

TRANSPORTATION CAREER CLUSTER		
Certificates: Secondary Level	Associate Degrees, Diplomas and Certificates: Postsecondary Level	Bachelors Degree: Postsecondary Level
Sample Occupations	Sample Occupations	Sample Occupations
Air Conditioning Mechanic Auto Body Helper Auto Body Printer Helper Automotive Electrician Brake Repairer-Automotive Brake Repairer-Diesel Technician Bus Driver Engine Repairer Flight Attendant Fluid Power Mechanic-Diesel Front End Mechanic Fuel Injection Servicer Service Station Attendant Tune-Up Mechanic Used Car Renovator	Aircraft Mechanic Airframe and Power Plant Maintenance Tech Automotive Apprentice Automotive Mechanic Automotive Painter Automotive Technician Backhoe Operator Construction Equipment Mechanic Collision Repair Technician Deckhand Farm Diesel Mechanic Heavy Equipment Mechanic Marine Technician Medium/Heavy Truck Mechanic Motorcycle Technician Operating Engineer Small Engine Mechanic Tractor Trailer, CDLA	Aerospace Engineer Aerospace Salesman Air Traffic Controller Aircraft Pilot Airport Manager Flight Engineer Navigator Pilot Safety Engineer Shipping Officer

Minimum High School Graduation Requirements

The following chart outlines the high school graduation requirements summarized from
704 KAR 3:305.

Minimum High School Graduation Requirements		
Subject	Credits	Courses
Language Arts	4	English I, II, III, IV
Social Studies	3	Credits to incorporate U.S. history, economics, government, world geography, and world civilization
Mathematics	3	Algebra I, Geometry, and one elective
Science	3	Credits to include life science, physical science, and earth/space science
Health	—	
Physical Education	—	
History and Appreciation of Visual and Performing Arts	1	History and Appreciation of Visual and Performing Arts or another arts course which incorporates such content
Total: 15 required credits plus 7 electives (22 credits)		
<p>Individual Graduation Plan: Each Student shall complete a program that emphasizes career plans and courses. IGP's can be altered by students and parents.</p> <p>A local board of education may substitute an integrated, applied, interdisciplinary or higher level course for a required course if the alternative course provides rigorous content and addresses the same applicable components of 703 KAR 4:060 (academic expectations). If a substitution is made, a rationale and course description shall be filed with the Department of Education.</p>		

Models and Sequences of Models of Required courses containing the required content for graduation can be found in the Implementation Manual for the Program of Studies CD-ROM or on the KDE Web Site.

Two credits in Foreign Language will be required for Pre-College Curriculum in 2004 in four year public universities.

SAMPLE PROGRAMS OF STUDY

This section provides samples of how a program of study may be designed to focus on a specific career cluster or career major. Included are sample programs of study for each cluster and one major within the cluster. The program of study for each cluster is generic and includes the minimum high school graduation requirements.

Each high school will need to design programs of study for their students based on the course offerings available within the high school and the area technology center. These focused programs of study should be utilized in developing a student's individual graduation plan that leads to successful transition to postsecondary, education, work or the military. Additional examples of programs of study for each career and technical area may be found in the Career and Technical Education Program of Studies Implementation Manual and on the Kentucky Department of Education web site:

(http://www.kde.state.ky.us/OSIS/Programofstudies_files/POS/postableofcontents.asp).

A blank program of studies page is included at the end of the document. This format may be used by schools in developing programs of study available to students in each school.

AGRICULTURE CAREER CLUSTER				
ACADEMIC CORE				
9 TH	10 TH	11 TH	12 TH	Postsecondary
English I	English II	English III	English IV	Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
Physical Education _ and Health	Arts and Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Elective	
Algebra I	Geometry	Third Mathematics Elective (Required)	Elective	
TECHNICAL CORE				
Principles of Agriculture, Science, and Technology	Plant and Land Science	Animal Science	Agriculture Employability Skills	
AgriScience	Small Animal Technology	Small Power Equipment	AgriBio-Technology	
	Landscape and Turf Management	Greenhouse Technology	Advanced Animal Science	

Note: The interdisciplinary course, Agri-Biology, may be substituted for one of the required science credits.

AGRICULTURE CAREER CLUSTER Agriculture Major: Agriculture Production				
ACADEMIC CORE				
9 TH	10 TH	11 TH	12 TH	Postsecondary
English I	English II	English III	English IV	Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
Physical Education _ and Health _	Arts and Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Elective	
Algebra I	Geometry	Third Mathematics Elective (Required)	Elective	
TECHNICAL CORE				
Principles of Agriculture, Science, and Technology	Greenhouse Technology	Animal Science	Agricultural Employability Skills	
AgriScience	Small Power and Equipment	Crop Technology	Agribusiness/ Farm Management	
	Plant and Land Science	Agri-Biology	Advanced Animal Sciences	
	Aquaculture	Equine Science	Agricultural Bio-Technology	

Note: The interdisciplinary course, Agri-Biology, may be substituted for one of the required science credits.

ARTS AND HUMANITIES CAREER CLUSTER				
ACADEMIC CORE				
9 TH	10 TH	11 TH	12 TH	Postsecondary
English I	English II	English III	English IV	Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
Physical Education _ and Health _	Arts & Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Elective	
Algebra I	Geometry	Third Mathematics Elective (Required)	Elective	
TECHNICAL CORE				
Art	Music	Drama	Speech	

ARTS AND HUMANITIES CAREER CLUSTER				
Arts and Humanities Major: Arts				
ACADEMIC CORE				
9 TH	10 TH	11 TH	12 TH	Postsecondary
English I	English II	English III	English IV	Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
Physical Education _ and Health	Arts & Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Elective	
Algebra I	Geometry	Third Mathematics Elective (Required)	Elective	
TECHNICAL CORE				
Art	Visual Arts	Drama	Choir	

BUSINESS AND MARKETING CAREER CLUSTER				
ACADEMIC CORE				
9 TH	10 TH	11 TH	12 TH	Postsecondary
English I	English II	English III	English IV	Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
Physical Education _ and Health _	Arts and Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Elective	
TECHNICAL CORE				
Computer and Technology Applications	Advanced Computer Applications	Business Technology or	Financial Services I or	
Principles of Marketing	Business Economics	Word Processing	Advanced Marketing	

Note: The interdisciplinary course, Business Economics, may be substituted for one Social Studies credit.

BUSINESS AND MARKETING CAREER CLUSTER				
ACADEMIC CORE				
9 TH	10 TH	11 TH	12 TH	Postsecondary
English I	English II	English III	English IV	Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
Physical Education _ and Health _	Arts and Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Elective	
TECHNICAL CORE				
Computer and Technology Applications	Business Technology	Financial Services I	Multi-Media Publishing	
Principles of Marketing	Computer and Technology Applications	Sales and Customer Service	Entrepreneurship	

Note: The interdisciplinary course, Business Economics, may be substituted for one Social Studies credit.

BUSINESS AND MARKETING CAREER CLUSTER Business Major: Financial Services				
ACADEMIC CORE				
9 TH	10 TH	11 TH	12 TH	Postsecondary
English I	English II	English III	English IV	Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
Physical Education _ and Health	Arts and Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Elective	
Algebra I	Geometry	Third Mathematics Elective (Required)	Elective	
TECHNICAL CORE				
Computer and Technology Applications	Accounting I	Financial Services I	Financial Services II	

Note: The interdisciplinary course, Business Economics, may be substituted for one Social Studies credit.

BUSINESS AND MARKETING CAREER CLUSTER Marketing Major: Retail/Wholesale				
ACADEMIC CORE				
9 TH	10 TH	11 TH	12 TH	Postsecondary
English I	English II	English III	English IV	Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
Physical Education _ and Health	Arts and Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Elective	
Algebra I	Geometry	Third Mathematics Elective (Required)	Elective	
TECHNICAL CORE				
Principles of Marketing	Retail Marketing	Sports Marketing	Advanced Marketing	
		Advertising/Promotion	E-Commerce	

Note: The interdisciplinary course, Business Economics, may be substituted for one Social Studies credit.

COMMUNICATIONS CAREER CLUSTER				
ACADEMIC CORE				
9 TH	10 TH	11 TH	12 TH	Postsecondary
English I	English II	English III	English IV	Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
Physical Education _ and Health _	Arts and Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Elective	
Algebra I	Geometry	Third Mathematics Elective (Required)	Elective	
TECHNICAL CORE				
Technology Education	Basic Drafting	Computer Aided Drafting	Introduction to Graphic Communications	
Workplace Principles	Computer Fundamentals	Applied Math	Traditional Layout and Graphic Design	

Special Note: The courses identified are specific content courses contained within the Kentucky Tech Curriculum. These sub-courses are used to deliver the specific technical content of each major and courses specified in the Career and Technical Education Program of Studies Implementation Manual.

COMMUNICATIONS CAREER CLUSTER
Communications Major: Printing Technology
Kentucky Tech Communications Program: Graphic Technology

ACADEMIC CORE				
9 TH	10 TH	11 TH	12 TH	Postsecondary
English I	English II	English III	English IV	Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
Physical Education _ and Health _	Arts and Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Elective	
Algebra I	Geometry	Third Mathematics (Required)	Elective	
TECHNICAL CORE				
Keyboarding Applications	Computer & Technology Applications	Word Processing	Technical Communications	
Technology Education	Technology Education	Introduction to Graphic Communication	Press I	

Special Note: The courses identified are specific content courses contained within the Kentucky Tech Curriculum. These sub-courses are used to deliver the specific technical content of each major and courses specified in the Career and Technical Education Program of Studies Implementation Manual.

CONSTRUCTION CAREER CLUSTER				
ACADEMIC CORE				
9 TH	10 TH	11 TH	12 TH	Postsecondary Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
English I	English II	English III	English IV	
Physical Education _ and Health _	Arts and Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Elective	
Algebra	Geometry	Third Mathematics Elective (Required)	Elective	
TECHNICAL CORE				
Computer Fundamentals	Computer Aided Drafting	Introductory Masonry	Basic Welding	
Construction Prints	Shop Power Tools and Maintenance	Service and Repair	Plumbing Fundamentals/Lab	
Industrial Safety	Workplace Principles	Electrical Construction I/ Lab	Direct Current Circuits	

Special Note: The courses identified are specific content courses contained within the Kentucky Tech Curriculum. These sub-courses are used to deliver the specified technical content of each major and courses specified in the Career and Technical Education Program of Studies Implementation Manual.

CONSTRUCTION CAREER CLUSTER
Construction Major: Residential/Commercial Carpentry
Kentucky Tech Construction Program: Carpentry

ACADEMIC CORE				
9 TH	10 TH	11 TH	12 TH	Postsecondary
English I	English II	English III	English IV	Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
Physical Education _ and Health _	Arts and Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Elective	
Algebra	Geometry	Third Mathematics Elective (Required)	Elective	
TECHNICAL CORE				
Computer & Technology Applications	Blueprint Reading for Construction	Industrial Safety*	Floor and Wall Framing/Lab	
Technology Education	Power Tools and Maintenance	Site Layout Foundations	Exterior and Exterior Finish	

Special Note: The courses identified are specific content courses contained within the Kentucky Tech Curriculum*. The sub-courses are used to deliver the specific technical content of each major and courses specified in the Career and Technical Education Program of Studies Implementation Manual.

EDUCATION CAREER CLUSTER				
ACADEMIC CORE				
9 TH	10 TH	11 TH	12 TH	Postsecondary
English I	English II	English III	English IV	Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
Physical Education _ and Health	Arts & Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Elective	
Algebra I	Geometry	Third Mathematics Elective (Required)	Elective	
TECHNICAL CORE				
Psychology	Visual Arts	Child/Human Development	Oral Communication	
			Leadership Dynamics	

EDUCATION CAREER CLUSTER Education Major: Math Teacher				
ACADEMIC CORE				
9 TH	10 TH	11 TH	12 TH	Postsecondary
English I	English II	English III	English IV	Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
Physical Education _ and Health	Arts & Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Elective	
Algebra I	Geometry	Third Mathematics Elective (Required)	Elective	
TECHNICAL CORE				
Computer & Technology Applications	Child/Human Development	Pre-Calculus	Calculus	
	Algebra II	Oral Communications		

HEALTH SCIENCES CAREER CLUSTER

Health Science Major: Pre-Nursing

ACADEMIC CORE				
9 TH	10 TH	11 TH	12 TH	Postsecondary
English I	English II	English III	English IV	Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
Physical Education _ and Health _	Arts & Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Elective	
Algebra I	Geometry	Third Mathematics Elective (Required)	Elective	
TECHNICAL CORE HEALTH CARE FUNDAMENTALS				
Health Science Introduction		Medical Science*	Advanced Health Care Skills	
	Emergency Procedures Medical Math*	Medical Terminology Health Care Fundamentals	Practicum	
OR				
KENTUCKY TECH CURRICULUM				
Health Science Introduction	HS Anatomy and Physiology	Medical Math	Medicaid Nurse Aide	
		Health and Wellness	Workplace Principles	
		Emergency Procedures	Practicum II (Health)	

*Medical Math may meet the requirement for the Third Mathematic Elective. The interdisciplinary course, Medical Science, may be substituted for the Life Science requirement.

HUMAN SERVICES CAREER CLUSTER				
ACADEMIC CORE				
9 TH	10 TH	11 TH	12 TH	Postsecondary
English I	English II	English III	English IV	Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
Physical Education _ and Health _	Arts and Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Elective	
<u>Algebra I</u>	Geometry	Third Mathematics Elective (Required)	Elective	
TECHNICAL CORE				
Life Skills	Consumer Economics	Relationships	Career and Family	
Sociology	Psychology	Housing	Law and Justice	
Humanities	Art	Child Development		

Note: In combination with other courses, the interdisciplinary course Nutritional and Food Science, may be substituted for one of the required science credits.

Consumer Economics is an interdisciplinary course which meets the graduation requirements for economics core content in Social Studies.

HUMAN SERVICES CAREER CLUSTER Human Services Major: Child Development				
ACADEMIC CORE				
9 TH	10 TH	11 TH	12 TH	Postsecondary
English I	English II	English III	English IV	Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
Physical Education _ and Health _	Arts and Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Elective	
Algebra I	Geometry	Third Mathematics Elective (Required)	Elective	
TECHNICAL CORE				
Life Skills	Child/Human Development	Child Development Services I	Career and Family	
	Parenting	Relationships	Child Development Services II	

Note: In combination with other courses, the interdisciplinary course Nutritional and Food Science, may be substituted for one of the required science credits.

Consumer Economics is an interdisciplinary course which meets the graduation requirements for economics core content in social studies.

INFORMATION TECHNOLOGY CAREER CLUSTER
CAREER MAJOR: NETWORKING

ACADEMIC CORE				
9 TH	10 TH	11 TH	12 TH	Postsecondary Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
English I	English II	English III	English IV	
Physical Education _ and Health	Arts and Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Physics or Principles of Technology	
Algebra I	Geometry	Third Mathematics Elective (Required)	Algebra II	
TECHNICAL CORE				
Computer and Technology Applications	<ul style="list-style-type: none">– Comp TIA: A+– Computer Support Essentials	Comp TIA: Network+, or equivalent courses in one of the following: <ul style="list-style-type: none">– Nortel I and II– Cisco I and II– Novell: Network+ and Netware 5 Administration– Microsoft: MCP– Apple iServices: ACTC– Comp TIA: A+	Comp TIA: Server+, or equivalent courses in one of the following: <ul style="list-style-type: none">– Nortel III and IV– Cisco III and IV– Novell: Netware Advanced Administration and NDS Design and Implementation– Microsoft: MCSE– Apple iServices: ACSA	
		Elective: Business Principles and Application	Elective: Help Desk	

RECOMMENDED COURSES – You may obtain specific content from related vendors.

RELATED CERTIFICATIONS: CNE, MCSE, CCNA, MCP, ACTC, ACSA, CompTIA: A+, NETWORK+, Server+

INFORMATION TECHNOLOGY CAREER CLUSTER
CAREER MAJOR: COMPUTER MAINTENANCE AND SUPPORT SERVICES

ACADEMIC CORE				
9 TH	10 TH	11 TH	12 TH	Postsecondary
English I	English II	English III	English IV	Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
Physical Education _ and Health _	Arts and Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Physics or Principles of Technology	
Algebra I	Geometry	Third Mathematics Elective (Required)	Algebra II	
TECHNICAL CORE				
Computer and Technology Applications	<ul style="list-style-type: none">– Comp TIA: A+ Computer Support Essentials	Comp TIA: I-Network+, or equivalent courses in one of the following: <ul style="list-style-type: none">– Nortel I and II– Cisco I and II– Novell: Network+ and Netware 5 Administration– Microsoft: MCP– Apple iServices: ACTC	<ul style="list-style-type: none">– Help Desk	
		Elective: Advanced Computer Applications		

RECOMMENDED COURSES – You may obtain specific content from related vendors.

RELATED CERTIFICATIONS: Help Desk, MCP, ACTC, CompTIA: Server+, Network+, A+

MANUFACTURING CAREER CLUSTER				
ACADEMIC CORE				
9 TH	10 TH	11 TH	12 TH	Postsecondary
English I	English II	English III	English IV	Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
Physical Education _ and Health _	Arts and Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Elective	
Algebra I	Geometry	Third Mathematics Elective (Required)	Elective	
TECHNICAL CORE				
Technology Education		Direct Current Circuits/Lab		
Electronic Drafting	Computer & Technology Applications	Industrial Maintenance	Applied Machining	
Blueprint Reading	Workplace Principles*	CAD/CRM/CNC	Basic Electricity/Lab	

Note: The courses identified are specific content courses contained within the Kentucky Tech Curriculum*. These sub-courses are used to deliver the specific technical content of each major and courses specified in the Career and Technical Education Program of Studies Implementation Manual.

MANUFACTURING CAREER CLUSTER
Manufacturing Major: Machine Tool Technology
Kentucky Tech Manufacturing Program: Machine Tool Technology

ACADEMIC CORE				
9 TH	10 TH	11 TH	12 TH	Postsecondary
English I	English II	English III	English IV	Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
Physical Education _ and Health	Arts and Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Third Mathematics Elective (Required)	Elective	
TECHNICAL CORE				
Computer & Technology Applications or Word Processing	Applied Mathematics*	Fundamentals of Machine Tool	Applied Machinery	
Technology Education	Blueprint Reading	Material Handling and Storage	CAD/CRM/CNC	

Special Note: The courses identified are specific content courses contained within the Kentucky Tech Curriculum*. These sub-courses are used to deliver the specific technical content of each major and courses specified in the Career and Technical Education Program of Studies Implementation Manual.

PUBLIC SERVICES CAREER CLUSTER				
ACADEMIC CORE				
9 TH	10 TH	11 TH	12 TH	Postsecondary
English I	English II	English III	English IV	Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
Physical Education _ and Health _	Arts and Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Elective	
Algebra I	Geometry	Third Mathematics Elective (Required)	Elective	
TECHNICAL CORE				
Overview of Public Services Cluster	Exploratory Course (12 week rotation) Fire Services and EMT Criminal Justice Public Utilities	Choose an area of emphasis Level I Fire Services or Criminal Justice or Public Utilities	Level II Class in area of emphasis Criminal Justice Fire Services Public Utilities	
Keyboarding	Computer Science	Psychology/Sociology	Psychology Cooperative	
	Business Law	Industrial Maintenance		
	Speech/Communications	Introduction to Hazardous Materials		

PUBLIC SERVICES CAREER CLUSTER Public Services Major: Fire Services				
ACADEMIC CORE				
9TH	10TH	11TH	12TH	Postsecondary
English I	English II	English III	English IV	Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
Physical Education _ and Health	Arts and Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Elective	
Algebra I	Geometry	Third Mathematics Elective (Required)	Elective	
TECHNICAL CORE				
Overview of Public Services Cluster	Exploratory Course (12 week rotation) Fire Services Criminal Justice Public Utilities	Choose an area of emphasis Fire Service Level I (with 40 hrs. EMT training) and/or Introduction to Hazardous Materials	Fire Services Level II	
Keyboarding	Business Law		Psychology	
	Speech/Communications			
	Computer Science			

SCIENCE AND MATHEMATICS CAREER CLUSTER

ACADEMIC CORE				
9 TH	10 TH	11 TH	12 TH	Postsecondary
English I	English II	English III	English IV	Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
Physical Education _ and Health	Arts and Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Elective	
Algebra I	Geometry	Third Mathematics Elective (Required)	Elective	
TECHNICAL CORE				
Computer & Technology Applications	Algebra II	Manufacturing Technology	Physics	

SCIENCE AND MATHEMATICS CAREER CLUSTER
Science and Mathematics Major: Mathematics

ACADEMIC CORE				
9 TH	10 TH	11 TH	12 TH	Postsecondary
English I	English II	English III	English IV	Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
Physical Education _ and Health	Arts and Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Elective	
Algebra I	Geometry	Third Mathematics Elective (Required)	Elective	
TECHNICAL CORE				
Algebra II	Pre-Calculus	Computer Programming	Calculus	

SCIENCE AND MATHEMATICS CAREER CLUSTER
Science and Math Major: Pre-Engineering

ACADEMIC CORE				
9TH	10TH	11TH	12TH	Postsecondary
English I	English II	English III	English IV	Program at secondary level is designed to lead to postsecondary degree(s) at Technical and Community Colleges. Courses taken should be those representative of the cluster area. Examples of associate degrees include
Physical Education _ and Health	Arts and Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Elective	
Algebra I	Geometry	Third Mathematics Elective (Required)	Elective	
TECHNICAL CORE				
Introduction to Engineering Design	Digital Electronics	Principles of Engineering	Engineering Design/Development	
		Computer-Integrated Manufacturing		

SCIENCE AND MATHEMATICS CAREER CLUSTER

Science and Mathematics Major: Science

ACADEMIC CORE				
9 TH	10 TH	11 TH	12 TH	Postsecondary
English I	English II	English III	English IV	Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
Physical Education _ and Health _	Arts and Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Elective	
Algebra I	Geometry	Third Mathematics Elective (Required)	Elective	
TECHNICAL CORE				
Medical Science	Physics I	Computer Programming	Physics II	

SCIENCE AND MATHEMATICS CAREER CLUSTER

Science and Math Major: Technology Education

ACADEMIC CORE				
9 TH	10 TH	11 TH	12 TH	Postsecondary
English I	English II	English III	English IV	Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
Physical Education _ and Health _	Arts and Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Elective	
Algebra I	Geometry	Third Mathematics Elective (Required)	Elective	
TECHNICAL CORE				
Overview of Technological Systems	Production Systems	Electricity/Electronics Technology	Manufacturing Technology	
	Bio-Related Systems	Graphics Communications Technology		
			Special Problems in Technology Education	

SOCIAL SCIENCES CAREER CLUSTER				
ACADEMIC CORE				
9 TH	10 TH	11 TH	12 TH	Postsecondary
English I	English II	English III	English IV	Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
Physical Education _ and Health	Arts and Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Elective	
Algebra I	Geometry	Third Mathematics Elective (Required)	Elective	
TECHNICAL CORE				
Psychology	Sociology	Foreign Language	US History	

SOCIAL SCIENCES CAREER CLUSTER Social Sciences Major: Sociology				
ACADEMIC CORE				
9TH	10TH	11TH	12TH	Postsecondary
English I	English II	English III	English IV	Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
Physical Education _ and Health	Arts and Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Elective	
Algebra I	Geometry	Third Mathematics Elective (Required)	Elective	
TECHNICAL CORE				
Psychology	Global Issues	Sociology	Foreign Language	

TRANSPORTATION CAREER CLUSTER				
ACADEMIC CORE				
9 TH	10 TH	11 TH	12 TH	Postsecondary
English I	English II	English III	English IV	Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
Physical Education _ and Health _	Arts and Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Elective	
Algebra I	Geometry	Third Mathematics Elective (Required)	Elective	
TECHNICAL CORE				
Technology Education	Workplace Principles*	Mechanical Concepts	Brake Systems/Lab	
Computer & Technology Applications	Leadership Dynamics	Auto Electric	Emission Systems	
Industrial Safety	Consumer Economics	Basic Fuel and Ignition Systems	Control Systems	

Special Note: The courses identified are specific content courses contained within the Kentucky Tech Curriculum*. These sub-courses are used to deliver the specific technical content of each major and courses specified in the Career and Technical Education Program of Studies Implementation Manual.

TRANSPORTATION CAREER CLUSTER
Transportation Major: Automotive Technology
Kentucky Tech Transportation Program: Automotive Technology

ACADEMIC CORE

9TH	10TH	11TH	12TH	Postsecondary
English I	English II	English III	English IV	Programs at the secondary level are designed to lead to postsecondary degrees at Technical and Community Colleges and Universities. Courses taken should be those representative of the cluster area. Specific articulation agreements may be developed with postsecondary institutions.
Physical Education _ and Health	Arts and Humanities	Elective	Elective	
Social Studies I	Social Studies II	Social Studies III	Elective	
Science I	Science II	Science III	Elective	
Algebra I	Geometry	Third Mathematics Elective (Required)	Elective	
TECHNICAL CORE				
Computer & Technology Applications	Computer Systems and Diagnosis Lab	Basic Fuel and Ignition Systems/Lab	Engine Repair/Lab	
Technology Education	Electrical Systems/Lab	Brake Systems/Lab	Automatic Transmission/Transaxles/Lab	

Special Note: The courses identified are specific content courses contained within the Kentucky Tech Curriculum. These sub-courses are used to deliver the specific technical content of each major and courses specified in the Career and Technical Education Program of Studies Implementation Manual.

RESOURCES

In addition to this document, other resources that will be helpful in guiding students through a career guidance process are as follows:

Awarding Career Major Certificates*

Practical Guide to Work-Based Learning*

Individual Graduation Plan and Advisory Program Implementation Guide*

Career & Technical Education Program of Studies

Implementation Manual*

Kentucky Career Guide**

Licensed Occupations**

Postsecondary Education Opportunities**

Kentucky Tech Curriculum Master Course List and Certificates for Technical Preparation Programs***

Web site: www.kde.state.ky.us/osis/voced/default.asp
www.state.ky.us/agencies/kytech/techhome.htm

* Available from the Division of Career and Technical Education, 21st Floor, Capital Plaza Tower, 500 Mero Street, Frankfort, KY 40601

***Available from the Kentucky Occupational Information Coordinating Committee, 1216 Capital Plaza Tower, 500 Mero Street, Frankfort, KY 40601.

***Available at state operated area technology centers and Department for Technical Education, 20th Floor, Capital Plaza Tower, 500 Mero Street, Frankfort, Kentucky 40601

CAREER CLUSTER					
ACADEMIC CORE					
9 TH	10 TH	11 TH	12 TH	13 TH	14 TH
TECHNICAL CORE					

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